

REMARKS

Claims 1-39 remain in the application with claims 1-7, 10, 13-19, 22, 25-31, 34, and 37-39 having been amended hereby.

As will be noted from the Declaration, Applicants are citizens and residents of Japan and this application originated there.

Accordingly, the amendments made to the specification are provided to place the application in idiomatic English, and the claims are amended to place them in better condition for examination.

An early and favorable examination on the merits is earnestly solicited.

Respectfully submitted,
COOPER & DUNHAM LLP

A handwritten signature in black ink, reading "Jay H. Maioli". The signature is written in a cursive, flowing style with a large, stylized "J" and "M".

Jay H. Maioli
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VERSION WITH MARKINGS TO SHOW CHANGES MADE
IN THE ABSTRACT OF THE DISCLOSURE

Please amend the Abstract by rewriting same to read as follows.

An [object is to reduce the signal processing volume in an audio processing unit. In an] audio signal processing method [which] that performs virtual acoustic image localization processing for sound source signals having at least one type of information among position information, movement information, and localization information[,] based on this information[, when] there are a plurality of changes in this information within a prescribed time unit, a single information change is generated based on this plurality of information changes, and virtual acoustic image localization processing is performed for the sound source signals based on this generated information change.

IN THE CLAIMS

Please amend claims 1-7, 10, 13-19, 22, 25-31, 34, and 37-39 by rewriting same to read as follows.

--1. (Amended) An audio signal processing method[, which] that performs virtual acoustic image localization processing of audio signals based on at least one type of information among position information, movement information, and localization information, [and wherein] the method comprising the steps of:

when there are a plurality of changes in said information within a prescribed unit of time, generating a single information change [is generated] based on said plurality of information changes[,]; and

performing virtual acoustic image localization processing [is performed] for said audio signals based on said generated information change.

--2. (Amended) The audio signal processing method according to Claim 1, wherein

the [generation] step of generating said single information change is performed using only said information presented last within said time unit.

--3. (Amended) The audio signal processing method according to Claim 1, wherein

the [generation] step of generating said single information change is performed using only said information presented first within said time unit.

--4. (Amended) The audio signal processing method according to Claim 1, wherein

the [generation] step of generating said single information change is performed using [the] a result of one of addition [or] and averaging of said plurality of information within said time unit.

--5. (Amended) The audio signal processing method according to Claim 1, wherein

the [generation] step of generating said single information change is performed by estimation, based on said plurality of information within said time unit.

--6. (Amended) The audio signal processing method according to Claim 1, wherein

the [generation] step of generating said single information change is performed only for those information elements within said plurality of information elements [the changes] in which the changes have exceeded a prescribed threshold within said time unit.

--7. (Amended) The audio signal processing method according to Claim 1, further comprising

[a step in which] imparting random fluctuations [are imparted] to said generated information change.

--10. (Amended) The audio signal processing method according to Claim 1, wherein

when there is no change in said information within said time unit, performing said virtual acoustic image localization processing [is performed] based on said information change applied to the immediately preceding time unit.

--13. (Amended) An audio signal processing method[, which] that performs virtual acoustic image localization processing for audio signals having at least one type of information among position information, movement information and localization information, associated with time information and/or event information, based on said information[; wherein], the method comprising the steps of:

when a plurality of said information elements are contained within a prescribed time unit, generates a single information change [is generated] based on said plurality of information elements[,]; and

performing virtual acoustic image localization processing [is performed] for said audio signals based on this generated information change.

--14. (Amended) The audio signal processing method according to Claim 13, wherein

said step of generating a single information change [generation] is performed using only [the] a last one of said

information elements presented within said time unit.

--15. (Amended) The audio signal processing method according to Claim 13, wherein

said step of generating a single information change [generation] is performed using only [the last] a first one of said information elements presented within said time unit.

--16. (Amended) The audio signal processing method according to Claim 13, wherein

said step of generating a single information change [generation] is performed by one of adding [or] and averaging said plurality of information elements within said time unit.

--17. (Amended) The audio signal processing method according to Claim 13, wherein

said step of generating a single information change [generation] is performed by estimation based on said plurality of information elements within said time unit.

--18. (Amended) The audio signal processing method according to Claim 13, wherein

said step of generating a single information change [generation] is performed only for those information elements in said plurality of information elements within said time unit[, the change] in which the change exceeds a prescribed threshold.

--19. (Amended) The audio signal processing method according to Claim 13, further comprising a step [in which] of imparting random fluctuations [are imparted] to said generated information change.

--22. (Amended) The audio signal processing method according to Claim 13, wherein

when there is no change in said information within said time unit, said step of performing virtual acoustic image localization processing is performed based on said information change applied to the immediately preceding time unit.

--25. (Amended) An audio signal processing method in which, when a plurality of information changes of at least one information type among position information, movement information, and localization information are applied to audio signals within a prescribed time unit, the method comprising the steps of:

generating a single information change [is generated] based on this plurality of information changes; [wherein]

performing virtual acoustic image localization processing [is performed] in advance on said audio signals based on a plurality of localization positions of the audio signals[,];

and based on [this] the generated single information change, reading out from storage means in which are stored a plurality of synthesized audio signals obtained from [this] the localization processing, at least one of said synthesized audio signals [are read out and reproduced].

--26. (Amended) The audio signal processing method according to Claim 25, wherein

said step of generating a single information change [generation] is performed using only [the] a last one of said information elements presented within said time unit.

--27. (Amended) The audio signal processing method according to Claim 25, wherein

said step of generating a single information change [generation] is performed using only [the last] a first one of said information elements presented within said time unit.

--28. (Amended) The audio signal processing method according to Claim 25, wherein

said step of generating a single information change generation [is performed] by one of adding [or] and averaging said plurality of information elements within said time unit.

--29. (Amended) The audio signal processing method according to Claim 25, wherein

said step of generating a single information change [generation] is performed by estimation based on said plurality of information elements within said time unit.

--30. (Amended) The audio signal processing method according to Claim 25, wherein

said step of generating a single information change [generation] is performed only for those information elements in said plurality of information elements within said time unit[, the] change in which the change exceeds a prescribed threshold.

--31. (Amended) The audio signal processing method according to Claim 25, further comprising a step [in which] of imparting random fluctuations [are imparted] to said generated information change.

--34. (Amended) The audio signal processing method according to Claim 25, wherein

when there is no change in said information within said time

unit, said step of performing virtual acoustic image localization processing is performed based on said information change applied to [the] an immediately preceding time unit.

--37. (Amended) An audio signal processing apparatus, comprising

an audio signal processing unit [which performs] for performing virtual acoustic image localization processing of audio signals based on at least one information type among position information, movement information, and localization information[,]; and

information change generation means [which] for generating, when a plurality of changes are made to said information within a prescribed time unit, [generates] one information change based on said plurality of information changes[; and], wherein

said audio processing unit is controlled based on the information change generated by said information change generation means, to perform virtual acoustic image localization processing of said audio signals.

--38. (Amended) An audio signal processing apparatus, comprising:

an audio processing unit [which performs] for performing virtual acoustic image localization processing of audio signals having at least one type of information among position information, movement information, and localization information, associated with time information and/or event information, based on said information[,]; and

information change generation means [which] for generating, when there are a plurality of said information changes within a prescribed time unit, [generates] one information change based on

said plurality of information changes[; and], wherein

said audio processing unit is controlled based on the information change generated by said information change generation means, to perform virtual acoustic image localization processing of said audio signals.

--39. (Amended) An audio signal processing apparatus, comprising:

an information change generation means [which] for generating, when a plurality of changes in at least one type of information for audio signals among position information, movement information, and localization information are requested within a prescribed time unit, [generates] one information change based on this plurality of information changes; and [wherein]

storage means in which are stored a plurality of synthesized audio signals obtained from the localized processing, wherein

virtual acoustic image localization processing is performed in advance on said audio signals based on a plurality of localization positions of the audio signals, and based on an information change generated by said information change generation means, from said storage means in which are stored a plurality of synthesized audio signals obtained from this localization processing, at least one of said synthesized audio signals are read out and reproduced.